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ABSTRACT

The concept underlying this performance contract program was based on maximizing the time students spend actively participating in learning activities and providing them with direct and immediate feedback or reinforcement. Continuous diagnosis and prescription were utilized to select materials and give intensified instruction by adjusting the content, level, and learning rate for each pupil. Materials were constantly manipulated and modified for self-directing and self-correcting experiences. Selected to participate in the project were 250 students from two schools which had a major population from black, low socio-economic families. All of the students were to meet the criteria of being more than one year retarded in reading, with an IQ above 75. Involved personnel took part in a week of pre-service activities, with the actual instruction of students lasting approximately six months. Comparison of pre- and post-test results indicated that the achievement gains were significant and encouraging: 39% of the pupils gained 0.6 years or more, and another 39% gained from 0 to 0.5 years. Findings of a follow-up study and a list of references are included. (AW)

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THE VIRGINIA PROJECT: GUARANTEED STUDENT ACHIEVEMENT IN READING

A Paper Presented

at the Seventeenth Annual IRA Convention

Detroit, Michigan

For the Panel Discussion Topic:

Evaluation of Performance Contracting in Reading:

A One Year Perspective

by

Frank E. Barham; B.S., M.A. Ed.

May 12, 1972

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THE VIRGINIA PROJECT: GUARANTEED STUDENT ACHIEVEMENT IN READING

HIGH INTENSITY LEARNING CENTERS

The concept of High Intensity Learning was generated by the curriculum research of Dr. S. Alan Cohen, Associate Professor and Director of the Reading and Language Arts Center, Yeshiva University's Graduate School in New York City.[1] It is a behavior-modification application of learning theory coupled with the humanistic "soft-hearted" approach to teaching reading.[2] It was implemented in Prince Edward County, Virginia, as a part of the 1970-71 "Guaranteed Student Achievement In Reading Project," a performance contract program.

Two hundred fifty pupils were selected to participate in the program. Approximately twenty-five students were scheduled on a daily basis for one-hour periods, five periods a day in reading centers. It was stated in the criteria for selection of pupils that each participant had

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[1] S. Alan Cohen, Teach Them All To Read (New York: Random House, 1969), p. 225.

[2] "Guaranteed Student Achievement in Reading Through Operation of Accelerated Achievement Centers" (New York: Learning Research Associates), Proposal Submitted to the Virginia State Department of Education and the School Divisions of the Counties of Prince Edward, Lunenburg, Mecklenburg, Wise, Dickenson, and Buchanan and the City of Norfolk, August 13, 1970, p. 78. Hereafter cited as LRA Proposal.

to be more than one year below grade placement in reading and have an intelligence quotient of 75 or above (1.7 guarantee; .4 guarantee stipulation of intelligence quotient of 74 or below).[3]

Each student was diagnosed to determine his particular needs or weaknesses, and learning activities and materials were prescribed for his involvement. Materials and activities were selected to provide maximum responsiveness to the students' needs in terms of skill, content, level, and rate of learning. The materials for the most part were self-directing and self-correcting and sequenced so that the student could work independently with a minimum of teacher direction.

The concept underlying this approach to teaching was based on maximizing the time spent by students in active participation in learning activities. Through the use of charts, graphs, and opportunities to choose the activity in which he wished to participate, the student was provided direct and immediate feedback or reinforcement. A process of continuous diagnosis and prescription was utilized. This increased the two factors of efficiency and intensity which appeared to enhance individualized instruction and, therefore, achievement.

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[3]Contractual Agreement by and between Prince Edward County Public Schools and Learning Research Associates, Inc. (Prince Edward County School Board Office, Farmville, Virginia), Performance Contract Agreement, November 4, 1970, Section 4.02 and 4.03, pp. 15-16. Hereafter cited as Contract.

The rationale behind the efficiency (prescribed learning activities) and intensity (time) method of instruction was based on research from which it was concluded that they were the two factors that most affected pupil achievement.[4] The best way to achieve efficiency was to "adjust what the child learns to his needs and allow him to learn that skill or content at his level and at his own rate."[5] Intensity was best achieved by increasing the number of activities per period.

Objectives

Among the most significant objectives of the program were the following:

1. to maximize student achievement, as indicated by performance in reading
2. to increase the retention power of the schools
3. to increase the cost effectiveness of instruction in reading in a manner which could be subsequently adopted in the schools on a turnkey basis.[6]

Related objectives of the program included an effort to determine the impact of the project as it related to overcoming academic deficits, the selection and use of learning materials, teacher training, qualifications, role, the design of physical facilities, and the nature and design of learning experiences.[7] The primary objective of maximizing achievement in reading, and the related objectives of selecting and using learning materials and the nature

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[4]LRA Proposal, op. cit., p. 21.

[5]Ibid. [6]Ibid., p. 1. [7]Ibid., p. 3.

and design of learning experiences was the major concern of educators involved in the project. It was the major concern of this paper.

Selection of Pupils

The four elementary schools and the one high school in Prince Edward County consisted of approximately 1900 students. The vast majority of the students were black with only seventy-five white students in attendance. All of the schools were qualified as target schools for Title I assistance. Approximately 92% of the school population came from the low socio-economic strata and were educationally deficient according to Title I statistics and standardized test results.[8]

According to contract terms, all participating pupils were to have an intelligence quotient of 75 or above and be reading on a level of one or more grade levels below actual grade placement as indicated by standardized tests to be administered by the evaluation contractor.[9] One hundred twenty-five students from each of the two involved schools were selected to participate in the program for a total of two hundred fifty. All students were in grades three (12), four (78), five (81), and six (79).[10]

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[8]ESEA Title I Application (Prince Edward County School Board Office, Farmville, Virginia), 1970-71 Program Description, July 1970.

[9]Contract, op. cit., Section 1.09, p. 8.

[10]Ibid., Section 1.10, p. 8.

The two hundred fifty pupils selected to be tested by the evaluation contractor were those who met the contract requirements based on locally administered tests. The Kuhlman-Anderson Ability Test (Form CD) and the Stanford Achievement Primary II Battery (Form W) were administered to fourth grade pupils. Fifth graders were recommended on the basis of results of the Lorge-Thorndike Intelligence Test and the Stanford Achievement Intermediate Battery (Form W). Sixth graders were recommended on the basis of results obtained from the Slosson Intelligence Test and the Stanford Achievement Intermediate II Battery (Form W). In addition, all pupils were administered the appropriate Metropolitan Achievement Test battery. A reserve pool of one hundred pupils was also identified for replacement purposes in the event the evaluation contractor's pre-tests indicated a pupil to be ineligible to participate.

Test administrators from the University of Virginia Bureau of Educational Research, the evaluation contractor, administered the following tests to determine grade level achievement status:

1. Iowa Test of Basic Skills, levels 3 and 4--pupils from grades 4 and 5

2. California Achievement Test (reading sub-test), levels 1, 2, and 3--pupils from grades 3, 4, 5, and 6

3. SRA Reading sub-test, Battery 2-4--pupils from grades 3 and 4

4. Metropolitan Achievement Test, Primary II--pupils from grades 4, 5, and 6

5. Metropolitan Achievement Test, Elementary--pupils from grades 4, 5, and 6[11]

Based on inspection of test data provided in the Request for Proposal (RFP), each pupil was administered a test that was two grade levels below grade placement by the evaluation contractor. One-third of the pupils in each grade level were randomly selected and assigned to take one of three tests (ITBS, MAT, SRA) based on grade placement. All pupils were administered the California Achievement Test.

Approximately one dozen standardized tests were reviewed by the evaluation contractor before the final selection of four was determined. They were inspected for validity, reliability, adequacy of norming, flexibility, application, and pertinence to the program.[12] These same tests but a different form were administered for the post-test.

All the pupils recommended by local school officials based on locally administered test data were declared eligible by the evaluation contractor on the basis of pre-test results to participate in the program. The status and eligibility of the one hundred reserve pupils (for

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[11]Based on business correspondence between Dr. Charles A. Woodbury, Jr., Associate Professor, University of Virginia Bureau of Educational Research, and the writer.

[12]Statement by Dr. Charles A. Woodbury, Jr., personal interview, November 5, 1971.

each school) were also confirmed for replacement purposes if required for reasons of dropouts and withdrawals.

Selection and Training of Staff

As stated in the RFP, the contractor selected two teachers from a list of four recommended by school officials.[13] Background information on the recommended pool of teachers was supplied to the contractor prior to scheduled interviews for final selection. The four teachers volunteered to be considered and to work in the program if selected by the contractor. They also volunteered background information for review by the contractor. The two teacher aides were selected and assigned to the program by local school officials. Both the teachers and teacher aides remained employees of and were paid by the local school division.

The last week of October (1970) was designated for orientation and training of center teachers. All personnel directly involved in the program from the seven school divisions assembled in Farmville (Prince Edward County) for the week-long, pre-service activities. Staff personnel and consultants of the contractor, Learning Research Associates (LRA), conducted the program under the direction of Dr. L. Roy Stern, Project Administrator

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[13]Request for Proposal document of the Virginia State Department of Education and the School Divisions (Prince Edward County School Board Office, Farmville, Virginia), Request of Education Turnkey Systems, Inc., August, 1970, p. 9.

for LRA, and Dr. S. Alan Cohen, chief consultant and architect of the program. Actual instruction began Monday, November 4, 1970 following the pre-service training and terminated June 1, 1971 (130 instructional days or approximately six months).

Diagnostic and Prescriptive Application

Because of its utility, prescriptive diagnosis as opposed to classical diagnosis was the first step in the instructional phase of the program.[14] Although assignment of numbers (grade level), standard scores, and percentage correct are utilized by both methods, the prescriptive diagnosis differs from the classical diagnosis in that it does not assign etiological labels to a pupil's behavior. The major differences between the two types of diagnosis are revealed by stating what the prescriptive method does that the classical method does not do.

Five characteristics of the prescriptive method according to the LRA proposal were listed as follows:

> 1. It defines the specific reading behavior measured, usually by the nature of a test used
> 2. It describes the behaviors operationally, usually by the nature of the test items
> 3. It defines the conditions of behavior on such dimensions as: a timed test, in a classroom, etc.
> 4. It defines the criterion of success in such terms as "grade level achievement" or "percent correct." This is called expectancy level and is determined by the teacher, who considers the entering level of the pupil, his general ability level, his degree of retardation, and the level of the materials available . . . and . . . is set at a level higher than the

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[14]LRA Proposal, op. cit., p. 24.

> pupil is presently operating, but low enough for him to reach in a relatively short time
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> 5. It answers the question, SO WHAT? of its findings. The teacher is not allowed to record a qualitative or quantitative designation to any test behavior unless he also records a "best guess" SO WHAT to indicate what strategy, grouping, medium, or level will remediate the deficiency[15]

The SO WHAT diagnostic behaviors listed for each discernable weakness were "determined by the available teaching material and the biases and talents of the teacher."[16] The first four characteristics were defined by the diagnostic tests used. These "tests were parts of published standardized batteries, teacher-made checklists, or reading samples."[17]

The SO WHAT diagnosis demanded that teachers teach for the types of behaviors defined by the criterion test. The tests used helped the teacher identify the specific behaviors to be learned, indicated how the learner would most likely learn them, and isolated the behavioral deficits. The diagnostic and prescriptive activities were ongoing, and using the criterion tests, the teacher corrected or added to the behaviors or responses expected of the pupil.

According to the SO WHAT diagnosis, intensified instruction was provided by adjusting the content, level, and rate of learning for each pupil. "The materials, strategy, and resources must personalize content, level, and rate for each individual."[18]

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[15]Ibid. [16]Ibid., p. 25. [17]Ibid., p. 28.

[18]Ibid., p. 31.

Teaching was considered to be behavior management in the contractor's program, and the teacher or manager had to insure immediate feedback for each pupil response, immediate reinforcement for correct responses, and immediate management of motivational factors such as materials, equipment, and pupil interest.

The teacher or classroom manager constantly manipulated and modified materials so that the pupil could use them in self-directing and self-correcting experiences. On-the-spot "first aid" was administered when necessary or desired by the pupil. The teachers or managers were previously trained in the "techniques of diagnosis, prescription, selection of materials for specific needs, monitoring student progress, and management procedures"[19] and had very little trouble adjusting to the child-centered rather than the traditional teacher-centered classroom situation.

Materials and Equipment Utilized

The materials used included those found in most schools as opposed to expensive and new material developed for similar programs. They were a collection of materials from dozens of publishers and manufacturers and included, among others, the Michigan Language Program, Barnell Loft Specific Skill Series, SRA Labs, Random House Reading Program, Random House Skilpacers, Gates Peardon Series, McCall Crabbs, Scholastic Books, Gateway Book sets, Weston Book sets,

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[19]Ibid., p. 28.

EDL Study Skills Kits, Macmillan Programmed Dictionary, Addison Wesley Kit A, Phonics Write and See booklets, and Word Analysis Cards.

These materials were selected on the basis of their flexibility of use (adjustment of content, level, and rate of learning) for each pupil, relevancy of content to the needs and interests of the pupils, and their self-directing and self-correcting nature. Immediate feedback to the learner was an increased motivation for further learning.[20] All materials were coded to the criteria identified by the diagnostic tests.

The only hardware or equipment used in the program was several cassette tape recorders, one filmstrip viewer, and one record player. It was because of the software oriented as opposed to a hardware-oriented program that this particular program was selected rather than the others submitted or bidded. It was believed by the participating school officials that for a program of this type to be successful, materials and equipment that were normally found in an elementary school reading program should be utilized. A highly machiene-oriented program would have been unusual, impractical, and too expensive to adopt even if it were a success.

Findings

The participants in the project considered the

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[20]Ibid., p. 48.

program a success in many ways. Prince Edward had no dropouts or withdrawals. Discipline, attendance, and attitudes of the pupils toward school and their work improved. School officials considered the methodology, techniques, and the growth of the pupils in working independently and with confidence a positive result and gain.

Whereas the contractor did not reach the 1.7 achievement guarantee, the gains recorded were, in the opinion of school officials, significant and encouraging. The total prorated grade equivalent gain for the two Prince Edward schools was .4388. For the project a comparison of control and experimental group grade equivalent gains by grade level is shown below:[21]

Grade Level	Experimental	Control
4	0.4	0.1
5	0.5	0.3
6	0.4	0.1

A significant factor indicated by the test scores was that 97 of the 250 pupils in the project, or 39 percent, made gains of 0.6 or more. This was equal to national norms for the time span covered. A similar number, 97 of 250 or 39 percent, made gains ranging from 0.0 to 0.5 years. A smaller number, 56 of 250 for 22 percent, regressed. The "effect of the scores of the latter group was to depress

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[21] Summary Report of the Project and Its Major Findings for Presentation to the State Board of Education (Prince Edward County School Board Office, Farmville, Virginia), Report on the Guaranteed Performance Contracting Project, August 6, 1971.

the total mean grade equivalent gain, thus tending to obscure the positive effects of the program."[22]

In a follow-up study of the reading achievement of the 399 (grades 1-9 in the seven participating school districts) pupils with tested intelligence quotients below 75, it was revealed that they made grade equivalent gains equal to gains achieved by pupils with intelligence quotients of 75 and above. In addition, they equaled the gains achieved by the total group of 2,430 pupils who participated in the Virginia project. Their mean or average gain equaled to a grade level gain of 0.4, and 48 percent of them equaled or exceeded the guaranteed gain of 0.4.[23]

In addition, it was revealed in the follow-up study that all pupils who participated in the performance contract program had a "more positive attitude toward reading than did the control pupils as measured by the Affective Reading Index, an attitude measuring instrument developed for the project by the University of Virginia Bureau of Educational Research, the evaluation contractor."[24] According to the Bureau researchers, the positive attitudinal difference was highly significant (at the .001 level) across grades 3-9.[25]

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[22]Ibid.

[23]Frank E. Barham, Milton D. Jacobson, Robert V. Turner, and Charles A. Woodbury, Jr., "'Lost' Children Find Their Way in Performance Contracting," Virginia Journal of Education, March, 1972, p. 8.

[24]Ibid., p. 9. [25]Ibid.

A close inspection of the test results revealed that because of the late start of the program the pre-tests were not administered until approximately a month after center instruction had been in progress. This meant that the students had the benefit of two months' instruction before the pre-tests were administered. The post-tests were administered the last week of school, in some cases the last day, and, therefore, the administration of both the pre and post-tests may be suspect. Taking into consideration the fact that all the pupils were one or more grade levels below their grade placement and the timing of the pre and post-tests (set in the contract by mutual agreement), the distribution of scores as noted above were considered a significant positive indication for continuation of the instructional phase of the project. Although the contractor did not meet the contractual stipulations for full payment, school officials were pleased that better results were indicated for the future if the mistakes of the first year could be corrected.

In any event, it was believed that, "the instructional phase of the program had merit, was better than anything previously employed, and that with two-three years' application, it would tend to increase and upgrade the level of achievement of the pupils."[26] It was the consensus of opinion of parti-

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[26]Based on personal correspondence between Mr. James A. Mecklenburger, who requested information for articles he was preparing for Phi Delta Kappan, Saturday Review, and Education USA, and the writer.

cipating school officials that the standardized tests did not indicate the true success of the program (the seven participating school districts planned to continue the reading centers established by the project). The services of the contractor, the evaluation contractor, and the management support group would not be continued, however. Each district indicated a desire to operate and supervise the program locally, using its own staff.

CONCLUSIONS

Why did school officials in Prince Edward County decide to participate in the performance contract project? It would have been easier not to participate. The usual reasons for not trying something new could have been offered. For example, it was easier not to change; we could have pleaded that the rewards were not worth the effort, that we did not understand the reason for change, that it would not have been good for us personally, or the fear of failure could have deterred our willingness to participate. We rejected these as valid reasons for non-participation in the project. Instead, we believed they were good reasons for participation.

In addition, we assessed our needs in Prince Edward County (we had just completed an evaluation of the total school program, facilities, and finance in a joint project with the Virginia State Department of Education and University of Virginia consultants) and decided

to participate in the project for the reasons which follow:

1. A drastically different approach to solving one teaching-learning problem was needed;
2. An instructional program was needed that would help upgrade quickly and efficiently our pupil achievement and teacher performance;
3. To gain the support of the governing boards in the County, we needed to demonstrate the efficient use of teachers, materials, and equipment at the best cost to the school system;
4. We believed education could be more "accountable" than it had been in the past;
5. We believed our pupils could learn despite a disadvantaged background;
6. We believed we had to revise the commitment in Prince Edward County from the need to provide an adequate education for every student to a commitment to provide a superior education for every student;
7. To accomplish these broad objectives we had to:
   a. Have a willingness to change a system which did not work;
   b. Find a system that did work;
   c. Seek causes of failures (system, teachers, program, etc.); and,
   d. Focus attention from "teaching to "learning".
8. And, finally, we believed a performance contract program might help us to solve some of these problems because of the different problem-solving approaches which it offered.

Although all the problems mentioned herein were not solved, it was our belief that participation in the project was worthwhile and educational.

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